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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,465	03/15/2004	Hardayal Singh Gill	HIT1P080/HSJ920040033US1	2241

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EXAMINER
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KLIMOWICZ, WILLIAM JOSEPH

ART UNIT	PAPER NUMBER
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2627

DATE MAILED: 11/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/800,465

**Applicant(s)**

GILL, HARDAYAL SINGH

**Examiner**

William J. Klimowicz

**Art Unit**

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--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-8 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-20 is/are allowed.
- 6) ☒ Claim(s) 2-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Status*

Claims 1 and 9 have been cancelled by the Applicant.

Claims 2-8 and 10-20 are currently pending.

### *Drawings*

The drawings corrections filed October 10, 2006 have been approved by the Examiner.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 2, 4 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Hasegawa (US 2003/0174446 A1).

As per claim 2, Hasegawa (US 2003/0174446 A1) discloses a magnetic head comprising:  
a magnetoresistive sensor (e.g., see FIG. 1) having first and second laterally opposed sides defining a track width (Tw); an in stack bias layer (e.g., 26) having a portion formed within said track width (Tw); and first and second layers (28, 30) adjacent (i.e., “lying near”) to the in stack

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bias layer (26), the first and second magnetic layers (28, 30) being separated from one another by a non-magnetic coupling layer (29) and said first and second magnetic layers (28, 30) having magnetizations that are antiparallel coupled across said non-magnetic coupling layer (29) (i.e., synthetic ferromagnetic across AP coupling layer of ruthenium - see paragraph [0062]).

As per claim 4, wherein said non-magnetic coupling layer comprises Ru - see paragraph [0062].

As per claim 7, wherein said first and second magnetic layers (28, 30) each have a thickness of 20 to 40 angstroms - see paragraph [0064].

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 5, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (US 2003/0174446 A1).

See the description of Hasegawa (US 2003/0174446 A1), *supra*.

As per claim 3, although Hasegawa (US 2003/0174446 A1) does not expressly disclose the first and second layers of the fixed layers (28, 30) as comprising CoPtCr, Official notice is taken that such layers used in the fixing layer systems of spin valve heads of the type disclosed by Hasegawa (US 2003/0174446 A1) are notoriously old and well known and ubiquitous in the

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art; such Officially noticed fact being capable of instant and unquestionable demonstration as being well-known.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the first and second fixed layers of Hasegawa (US 2003/0174446 A1) as being comprised of CoPtCr.

The rationale is as follows: one of ordinary skill in the art would have been motivated to have provided the first and second fixed layers of Hasegawa (US 2003/0174446 A1) as being comprised of CoPtCr in order to enhance the stability and stiffness of the fixed layers, as is known in the art.

As per claim 5, Hasegawa (US 2003/0174446 A1) further discloses a magnetic free layer (24), and as per claim 6, further comprising a nonmagnetic spacer layer (25) disposed between said bias layer (26) and said free layer (24).

As per claim 5, however, Hasegawa (US 2003/0174446 A1) does not expressly disclose wherein said in stack bias layer (26) is disposed between one of said first and second magnetic layers (28, 30) and said free layer (24).

Official notice is taken that rearranging layers within a magnetic spin valve of the type disclosed by Hasegawa (US 2003/0174446 A1), is a concept notoriously old and well known and ubiquitous in the art; such Officially noticed fact being capable of instant and unquestionable demonstration as being well-known.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the in-stack bias layer (26) of Hasegawa (US 2003/0174446 A1) on

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the opposite side of the free layer (24), and interacting in the same manner with said free layer, as is set forth in claim 5.

The rationale is as follows: one of ordinary skill in the art would have been motivated to have provided the in-stack bias layer (26) of Hasegawa (US 2003/0174446 A1) on the opposite side of the free layer (24), and interacting in the same manner with said free layer, as is set forth in claim 5, since such rearrangement does not change the manner in which the function of the spin valve sensor of Hasegawa (US 2003/0174446 A1), the way in which the operation of the spin valve sensor of Hasegawa (US 2003/0174446 A1) operates, and the resultant biasing of the free layer of the spin valve sensor of Hasegawa (US 2003/0174446 A1) functions. The Applicant has not provided reasons for why such a positioning of the layer would provide unexpected or non-obvious results, as it pertains to the scope of the claimed invention. Furthermore, it has been held that the mere rearranging of parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

As per claim 8, although Hasegawa (US 2003/0174446 A1) does not expressly disclose wherein a seed layer is formed adjacent one of said first and second magnetic layers, Official notice is taken that seed layers used in the type of analogous sensor disclosed by Hasegawa (US 2003/0174446 A1) are notoriously old and well known and ubiquitous in the art; such Officially noticed fact being capable of instant and unquestionable demonstration as being well-known.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a seed layer as claim 8 formed adjacent one of said first and second magnetic layers of Hasegawa (US 2003/0174446 A1), as is known in the art

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The rationale is as follows: one of ordinary skill in the art would have been motivated to provide a seed layer as claim 8 formed adjacent one of said first and second magnetic layers of Hasegawa (US 2003/0174446 A1), as is known in the art in order to improve the grain size and crystallographic structure of subsequently deposited layers, as is well known, established and appreciated in the art.

### ***Response to Arguments***

Applicant's arguments with respect to claims 2-8 have been considered but are moot in view of the new ground(s) of rejection.

### ***Allowable Subject Matter***

Claims 10-20 are currently allowed over the art of record.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

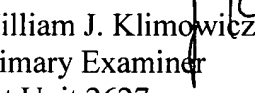
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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (571) 272-7577. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Thi Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
William J. Klimowicz  
Primary Examiner  
Art Unit 2627

WJK